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EXAMINER

ALEJANDRO, RAYMOND

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***Response to Arguments***

1. Applicant's arguments filed 09/11/08 have been fully considered but they are not persuasive.
2. The gist of applicant's arguments is premised on the assertion that the present claims contain patentable subject matter simply because they include the limitation "*wherein a main element of the conductive layer is different from a main element of the intermetallic compound*", Apparently, applicant's standard for ascertaining what is meant by "*different*" [sic] is "*determined by comparing the kind of elements in two layers with each other*".

Applicant contends that the two disputed layers are not different because even though the prior art reference discloses a first phase layer made of Cu<sub>6</sub>Sn<sub>5</sub> (1<sup>st</sup> composition) and another phase layer made of a different Cu-Sn-like composition (2<sup>nd</sup> composition) they both have the same main elements. Thus, their main elements are not sufficiently different from each other. In other words, applicant's standard for asserting a difference within the context of the claimed invention is based on the constituents of the intermetallic compound per se rather than on the specific composition thereof. Here is the main dilemma in this application, whether same constituents in an intermetallic compound but different compositions thereof are different or not in the context of the claimed invention and in light of the prior art disclosure. In reply, the examiner merely avers that he does not share applicant's standard, and does not agree with the position proffered by the applicant. The examiner is of the view that Cu<sub>6</sub>Sn<sub>5</sub> and Cu-Sn-like compositions do form different compounds by combining different numbers of main elements. Thus, their main elements in terms of compositional aspects are different. In this case, the distinctive difference being the difference [sic] in COMPOSITION per se, not in elements as

Art Unit: 1795

proffered by the applicant. All things considered, we all can agree to disagree on claim interpretation and semantic labeling of the claims. If the examiner is erring on his determination, he is erring on the caution side to protect the PUBLIC.

3. With respect to applicant's arguments that "*Tamura et al fails to disclose or suggest that the conductive layer of 0.05 to 0.5 $\mu$ m is formed between the active material layer and the collector*", applicant's is respectfully requested to review the disclosure of Tamura et al which reveals and reports the convenience of having layers of the disclosed material having a thickness of less than 0.5 $\mu$ m. Refer to description of Figure 8 at the bottom of page 52 and 3.3 Heat Treatment effects on the Structures of the Active Materials in Tamura et al. Additionally, applicant's arguments in the paragraph bridging pages 4-5 of the 09/11/08 amendment appear to admit that Tamura et al does contain sufficient disclosure concerning the thickness of the disclosed layers such a thickness is/are less than 0.5  $\mu$ m. As such, the reference clearly mentions that is known in the art to employ layers having a thickness as instantly claimed. Thus, the examiner does not understand applicant's point of contention concerning this subject matter.

4. Applicant's arguments fail to comply with 37 CFR 1.111(b) because they amount to a general allegation that the claims define a patentable invention without specifically pointing out how the language of the claims patentably distinguishes them from the references. *This is to address the arguments advanced by the applicant on pages 6-8 and 9-10 of the 09/11/08 amendment regarding rejection under Section 103, and its legal standard for determining prima-facie obviousness, and the poorly argued distinctions over the cited references and/or combination of cited references.*

Art Unit: 1795

5. Applicant's arguments do not comply with 37 CFR 1.111(c) because they do not clearly point out the patentable novelty which he or she thinks the claims present in view of the state of the art disclosed by the references cited or the objections made. Further, they do not show how the amendments avoid such references or objections. *This is to address the arguments advanced by the applicant on pages 6-8 and 9-10 of the 09/11/08 amendment regarding rejection under Section 103, and its legal standard for determining prima-facie obviousness, and the poorly argued distinctions over the cited references and/or combination of cited references.*

6. Applicant remains of the opinion that the invention as instantly claimed is patentable over the prior art of record because the prior art "fail to disclose or suggest the configuration (b) of the present invention [i.e. the conductive layer is provided between the active material layer of the negative electrode and the collector]" and "configuration (c) [i.e. the main element of the conductive layer is different from the main element of the intermetallic compound]". However, the examiner strenuously but respectfully disagrees with applicant's opinion.

7. Regarding the first point [configuration (b)], applicant has gone to a great length to explain that in Tamura et al (2002) "the  $Cu_3Sn$ -like phase as shown in Fig. 8(b) constitutes an active material layer. From the descriptions and Fig 8(b), it is clear that the "conductive layer" is not present between the active material layer and the collector". In other words, what applicant is contending is that because the semantic of the limitation "active material layer" corresponding to the  $Cu_3Sn$ -like phase does not read on "conductive layer" his invention now represents a great innovation and novelty over the prior art. Fine. **But applicant is totally overlooking that electrode active materials by nature are also conductive materials.** Take a look at the definition offered by Merriam-Webster's Collegiate Dictionary (10th Edition):

Art Unit: 1795

*“electrode - a conductor used to establish electrical contact”*. At this point, the Examiner verily believes that no more explanation is necessary because the above discussion is self-explanatory of the connotation of the electrode active material layer; and applicant’s conductive layer in no way positively excludes *“electrode active materials”*. More than enough has been said.

8. With respect to the second point [*configuration (c)*], applicant has contended that the present claims are patentably distinct because the Tamura publication *“Study on the anode behavior of Sn and Sn-Cu alloy thin film electrodes”* does not show *“the main constituent element of the protective layer is different from that of the intermetallic compound”*. In response, the examiner largely disagrees with applicant’s characterization of the amendatory language *“the main constituent element”*. Concerning this matter, the examiner verily believes that in the instant case the properties and characteristics of both *“the intermetallic compound”* and the *“protective layer”* are intrinsically related to their final composition resulting from the synergistic effect obtained by combining specific numbers of atoms of one element (e.g. atoms of Cu) and specific number of atoms of another element (i.e. atoms of Sn). The *“main constituent”* for purposes of defining compositional behavior and properties is NOT copper (Cu) alone or individually as alleged by the applicant. Rather, *“the main constituents”* for purposes of defining compositional behavior and properties are the specific combination of element atoms forming the particular composition. Therefore, the main constituent elements are distinct.

In this case, the  $\text{Cu}_6\text{Sn}_5$  second phase layer represents the active material layer and the Cu-Sn-like phase first layer represents the protective layer. The Sn-Cu phase layers have different compositions. It is noted that the main constituents (for purposes of compositional properties and characteristics) of both the Cu-Sn-like (i.e.  $\text{Cu}_3\text{Sn}$ ) phase first layer and the

Art Unit: 1795

Cu<sub>6</sub>Sn<sub>5</sub> second phase layer are different. In chemical terms, the main compositions of Cu-Sn-like (i.e. Cu<sub>3</sub>Sn) phase first layer and the Cu<sub>6</sub>Sn<sub>5</sub> second phase layer are not equal (←emphasis supplied). The main constituents of the first phase layer includes three atoms of Cu and one of Sn whereas the main constituents of the second phase layer includes six atoms of Cu and five atoms of Sn. Thus, their respective constituents are dissimilar.

9. In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). This applies with equal force to arguments advanced by the applicant as to Tamura'619 and Tamura WO'757 (*i.e. they merely disclose a thin alloy film provided on a current collector*) in the context that they both were proposed as references in combinatory-obviousness rejections citing more than one reference.

10. The main contention of applicant's arguments is centered on the assertion that the prior art "*fails to disclose the claimed feature of protective layer for preventing a reaction between the active material layer and the collector*". However, this assertion is found unconvincing by the Examiner for the same reasons that applicant has expressed about the gradual reaction between the active material layer and the collector occurring during the progression of a charging-discharging cycle (See entire paragraph bridging pages 14-15 of the 07/25/07 amendment). Accordingly, at a minimum, the protective layer which is present in the prior art of record as the mixed layer identified by the Examiner satisfies the function of "gradually" preventing the reaction between the active material layer and the collector. Applicant's invention, as functionally recited in the present claims, in no way clearly stipulates the degree for preventing

Art Unit: 1795

the reaction; applicant's invention merely calls for a protective layer "capable of" preventing (minimizing) a reaction between the active material layer and the collector. As such, the Examiner is still of the view that the prior art protective layer comprising a mixed layer is capable of achieving the function claimed by the applicant because such a mixed layer contains Ti, Ni, Zr and/or W, and even though it does not "*completely*" prevent the reaction between the active material layer and the collector, it does "*gradually*" prevent or minimize that reaction during charging/discharging cycles due to the degree of separation between the active material layer and the collector provided by the mixed layer interposed therebetween. Thus, since the mixed layer is sandwiched by the active material layer and the collector, it can be fairly stated that the mixed layer prevents a direct interaction between the active material layer and the collector; therefore, reaction between these components is also prevented. This also applies with equal force to all the arguments advanced by the applicant concerning how representative Comparative Example 1 is with respect to the claimed invention (See page 15 of the 07/25/07 amendment) and applicant's discussion of Tamura et al on page 17 of the 07/25/07 amendment (the basis for the second 102 rejection, item 11 of the 04/25/07 Office Action).

In this respect, applicant is reminded that "*Arguments that the alleged anticipatory prior art is nonanalogous art' or teaches away from the invention' or is not recognized as solving the problem solved by the claimed invention, [are] not germane' to a rejection under section 102.*" *Twin Disc, Inc. v. United States*, 231 USPQ 417, 424 (Cl. Ct. 1986) (quoting *In re Self*, 671 F.2d 1344, 213 USPQ 1, 7 (CCPA 1982)). See also *State Contracting & Eng'g Corp. v. Condotta America, Inc.*, 346 F.3d 1057, 1068, 68 USPQ2d 1481, 1488 (Fed. Cir. 2003) (***See MPEP 2131.05 Nonanalogous or Disparaging Prior Art***).

Art Unit: 1795

11. Applicant's arguments concerning the formation of the mixed layer including heat treatment or the like (see page 14 of the 07/25/07 amendment) is completely irrelevant to the patentability of the present claims because the present claims are directed to a product per se (i.e. the non-aqueous secondary battery) and the method of making it does not further define patentable subject matter of a product.

12. In response to applicant's arguments concerning the representation of EXAMPLE 1 and its improved and excellent properties when compared to Tamura et al (page 16 of the 07/25/07 amendment), it is to be noted that such an example includes specific compositional materials or constituents, configuration and/or arrangements not actually recited in at least independent claim 20. Thus, the evidence or argument advanced by the applicant is not fully commensurate in scope with the claimed invention. Additionally, any assertion of expected or superior results is ineffective to overcome a rejection based on a 102 anticipatory analysis, *In re Wiggins*, 488 F.2d 538, 543, 179 USPQ 421, 425 (CCPA 1973) (***See MPEP 2131.04 Secondary Considerations***).

13. In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., *the thickness of the collector does not change or decrease*) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993). The claimed subject matter of at least independent claim 20 is entirely silent about any unchanged or not-decreased thickness of the collector.

/Raymond Alejandro/  
Primary Examiner, Art Unit 1795